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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/651,856	08/29/2003	Bernd Goller	MAS-FIN-403	9446
24131	7590	10/20/2004	EXAMINER	
LERNER AND GREENBERG, PA			IM, JUNGHWA M	
P O BOX 2480			ART UNIT	
HOLLYWOOD, FL 33022-2480			PAPER NUMBER	

2811

DATE MAILED: 10/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/651,856

Applicant(s)

GOLLER ET AL.

Examiner

Junghwa M. Im

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) 1-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 24-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 08/09/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election of claims 24-41 in the reply filed on July 27, 2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 30-31 and 40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 30 recited a unclear limitation of "said wiring structure has an adhesive layer on interfaces to a plastic plate formed by said first and second layers." The instant invention does not disclose that the wiring structure has an adhesive layer.

Claims 31 and 40 recite "the semiconductor chip has an active upper side embedded in said first plastic layer, and the semiconductor chip has passive rear sides covered by said second plastic layer." However, the instant invention discloses that the an active upper side of the semiconductor chip is embedded in the second plastic layer.

### ***Claim Rejections - 35 USC § 102***

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 24-26, 29-35 and 38-41 are rejected under 35 U.S.C. 102(e) as being anticipated by Jiang et al. (US 6515355), hereinafter Jiang.

Regarding claim 24, Fig. 9A of Jiang shows an electronic component with a semiconductor chip, comprising:

a multilayer plastic embedding compound [12', 56] embedding the semiconductor chip [18], said multilayer compound forming a first plastic layer [56] and a second plastic layer [12; a plastic substrate]

the semiconductor chip having marginal sides surrounded, up to a partial height thereof, by said first plastic layer;

said first plastic layer having an upper boundary adjoining said second plastic layer located thereabove;

said second plastic layer resting on regions of the marginal sides of the semiconductor chip not covered by said first plastic layer;

said second plastic layer having a level upper side forming a boundary interface to at least one further component plane; and

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at least one wiring structure [22'] disposed above said second plastic layer, said wiring structure having through-contacts [54] between contact regions of the semiconductor chip and external contacts of the electronic component [through a solder ball 14'].

Regarding claim 25, Fig. 9A of Jiang inherently shows said first plastic layer is formed with a plastic embedding compound having different levels of crosslinking staggered vertically, with a highest level of crosslinking being arranged in a region of a base surface of said first plastic layer since the first plastic layer is treated to form a crosslinked siloxane network [col. 3, line 60- col. 4, line 4]. In addition, note that "crosslinking staggered vertically and crosslinking being arranged" are a process designation and would thus not carry patentable weight in this claim drawn to a product. See *In re Thorp*, 227 USPQ 964 (Fed. Cir. 1985).

Regarding claim 26, Fig. 9A of Jiang inherently shows said first plastic layer is formed with a plastic embedding compound having a completely crosslinked region at a base plate and a precrosslinked region thereabove through forming a crosslinked siloxane as discussed in claim 25.

Regarding claim 29, Jiang discloses that said second plastic layer has a polyimide resin forming a leveling compensating compound [col. 2, lines 54-55]. Also, note that "forming a leveling compensating compound" is a process designation and would thus not carry patentable weight in this claim drawn to a product. See *In re Thorp*, 227 USPQ 964 (Fed. Cir. 1985).

Regarding claim 30, insofar as understood, Fig. 9A of Jiang shows said wiring structure is covered by adhesive material [24; epoxy] on interfaces to a plastic plate formed by said first and second layers.

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Regarding claim 31, insofar as understood, Fig. 9A of Jiang shows the semiconductor chip has an active upper side embedded in said second plastic layer, and the semiconductor chip has passive rear sides covered by said first plastic layer.

Regarding claim 32, Fig. 9A of Jiang shows the semiconductor chip has an active upper side projecting from said first plastic layer, and a passive rear side embedded in said first plastic layer.

Regarding claim 33, Fig. 9A of Jiang shows a portion of a blank with a plurality of component positions for electronic components, each having at least one semiconductor chip, the blank comprising:

- a first plastic layer [56] surrounding the semiconductor chips on marginal sides and up to a partial height thereof;

- a second plastic layer [12'] above said first plastic layer, said first plastic layer having an upper boundary to said second plastic layer;

- said second plastic layer resting on regions of the marginal sides of the semiconductor chips not covered by said first plastic layer;

- a further component plane defined above said second plastic layer, and said second plastic layer having a level upper side forming an interface to said further component plane [through a solder ball 14'];

- wiring structures [22'] with through-contacts [54] between contact regions of the semiconductor chips and external contacts of electronic components disposed above at least one of said second plastic layer and the semiconductor chips;

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at least one of said first and second plastic layers being at least partly cured [col. 3, line 24 – col. 4, line 40] and forming a self-supporting, substantially dimensionally stable, multilayer plastic plate.

The subject matters regarding claims 34 and 35 have been discussed in claims 25 and 26 concurrently.

The subject matters regarding claims 38-41 have been discussed in claims 28-31 concurrently.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 27-28 and 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiang in view of Takeuchi et al. (US 6548598), hereinafter Takeuchi.

Regarding claims 27 and 28, Fig. 9A of Jiang shows substantially the entire claimed structure except comprising spherical particles (glass beads) in the first plastic layer. Takeuchi discloses adding glass beads to the thermoplastic resin which is the identical plastic material in the first plastic layer of the instant invention [col. 7, lines 32-46].

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize the teachings of Takeuchi into the device of Jiang in order to have the first plastic layer filled with glass beads to form a denser plastic layer.

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The subject matters regarding claims 36 and 38 have discussed in claims 27 and 28.


***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Junghwa M. Im whose telephone number is (571) 272-1655. The examiner can normally be reached on MON.-FRI. 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C Lee can be reached on (571) 272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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